



IB MYP YEAR 5

Year 10 Standard Mathematics

**Assessment**  
**HOW THINGS GROW**

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Name: \_\_\_\_\_ Teacher: **Ms. Luk**

Date Due **18<sup>th</sup> December, 2013**

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**Topic: Arithmetic Progression, Geometric Progression, Logarithm and Exponential**

**Ref Text: New Trend** S4B10, S5B8, S6\_1, S6\_2  
**Haese & Harries** Chapter 16, 14

**INSTRUCTIONS:**

- ◆ Read the rubric carefully.

**ASSESSMENT:**

You are required to

- research and investigates a real life situation on how things grow/decay.
- collect and record the data, either from the internet or experiments.
- suggest a model on the data collected
- use the model to predict the future situation.
- create a poster to present your findings

Presentation

You will have to include the followings:-

- The poster should be on A2 sized or larger paper/cardboard
- A title
- A brief explanation on how things (the topic you have chosen) grow.
- A brief discussion on how the model you created fits in the data you collect in related with the growth.
- You may also provide an A4 page to further explain your findings

Task assess Criteria B, C and D

## Criterion B Investigating Patterns

You should have collected some data related to the topic of your own choice.

You are required to use the data collected to

- Generate a pattern from the data collected.
- Generate the model (the general formula) for the data.
- Give a conclusion for your findings
- Explain how your model works for the situation provided.

Achievement level	Task Specific Rubric	IBO Published Descriptor	Student's Self-Evaluation
0	The student does not submit a poster of acceptable quality.	The student does not reach a standard described by any of the descriptors given below.	(0-8)
1-2	The student is able to show a pattern within the data collected.	The student <b>applies, with some guidance</b> , mathematical problem-solving techniques to recognize <b>simple</b> patterns.	
3-4	The student is able to suggest a model, which fits the data collected.	The student <b>applies</b> mathematical problem-solving techniques to recognize patterns, <b>and suggests</b> relationships or general rules.	(0-8)
5-6	The student selects their own techniques for organizing and analyzing the model. The general rule or formula (up to a MYP5 level) is generated. A conclusion is provided.	The student <b>selects and applies</b> mathematical problem-solving techniques to recognize patterns, <b>describes</b> them as relationships or general rules, and <b>draws conclusions</b> consistent with findings.	
7-8	The student selects their own techniques for organizing and analyzing the model. The general rule or formula is generated. A conclusion is provided, which further prediction and justification on the model.	The student <b>selects and applies</b> mathematical problem-solving techniques to recognize patterns, <b>describes</b> them as relationships or general rules, draws the <b>correct conclusions</b> consistent with the correct findings, and <b>provides justifications or proofs</b> .	

### Criterion C

Through out the poster you are able to communicates logically and effectively to people who are reading your poster. With the aid of mathematical diagrams (graphs) and mathematical terms to help you to present the model you generated.

Achievement level	Task Specific Rubric	IBO Published Descriptor	Student's self-evaluation
0	The student does not reach a standard described by any of the descriptors given below.	The student does not reach a standard described by any of the descriptors given below.	(0-6)
1-2	Student is able to attempt to explain his/her findings with mathematical terms. The lines of reasoning are difficult to follow.	<ul style="list-style-type: none"> <li>The student shows <b>basic</b> use of mathematical language <b>and/or</b> forms of mathematical representation.</li> <li>The lines of reasoning are <b>difficult to follow</b>.</li> </ul>	
3-4	Student is able to explain his/her findings with aid of diagrams and/or graphs. The lines of reasons are clear. The presentation of the poster is neat and clear.	<ul style="list-style-type: none"> <li>The student shows <b>sufficient</b> use of mathematical language <b>and</b> forms of mathematical representation.</li> <li>The lines of reasoning are <b>clear</b> though not always <b>logical</b> or <b>complete</b>.</li> <li>The student moves between different forms of representation <b>with some success</b>.</li> </ul>	Teacher's Final Grade
5-6	The student shows good use of mathematical language and terms to explain his/her findings with aid of diagrams and/or graphs. Lines of reasoning are concise, logical and complete. The presentation of the poster is logical, concise, and clear.	<ul style="list-style-type: none"> <li>The student shows <b>good</b> use of mathematical language <b>and</b> forms of mathematical representation.</li> <li>The lines of reasoning are <b>concise, logical</b> and <b>complete</b>.</li> <li>The student moves <b>effectively</b> between different forms of representation.</li> </ul>	(0-6)

## Criterion D

After the model generated, you will need to comment how well it suits the situation. You might need to plot the data and your general formula to see how close your model fits the situation. You might also need to give explanations if your model did not fit the data perfectly and give suggestions to improve.

Achievement level	Task Specific Rubric	IBO Published Descriptor	Student's self-evaluation
<b>0</b>	The student does not reach a standard described by any of the descriptors given below.	The student does not submit a poster. Or, the students submit work with unacceptable quality.	
<b>1–2</b>	The student is able to provide a real life situation of how things grow.	<p>The student <b>attempts to explain</b> whether his or her results make sense in the context of the problem.</p> <p>The student <b>attempts to describe</b> of his or her findings in connection to real life where appropriate.</p>	
<b>3–4</b>	<p>The student is able to provide a real life situation on how things grow.</p> <p>The student is able to describe the importance of his/her model generated.</p> <p>The student attempts to justify how accurate with the model generated.</p>	<p>The student <b>correctly but briefly explains</b> whether his or her results make sense in the context of the problem.</p> <p>The student <b>describes the importance</b> of his or her findings in connection to real life where appropriate.</p> <p>The student <b>attempts to justify</b> the degree of accuracy of his or her results where appropriate.</p>	Teacher's Final Grade
<b>5–6</b>	<p>The student critically explains how the model generated fits the real life situation.</p> <p>The student justifies how accurate the model generated.</p> <p>The student suggests alternative method(s) on generating the model.</p>	<p>The student <b>critically explains</b> whether his or her results make sense in the context of the problem.</p> <p>The student provides a <b>detailed explanation</b> of the importance of his or her findings in connection to real life where appropriate.</p> <p>The student <b>justifies</b> the degree of accuracy of his or her results where appropriate.</p> <p>The student suggests improvements to his or her method where appropriate.</p>	